THE CLAIMS

1-10. (canceled)

11. (currently amended) A functional heterotrimeric G protein comprising an α subunit comprising a first amino acid sequence encoding a first fluorescent ~~or luminescent~~ protein and a β ~~or γ~~ subunit comprising a second amino acid sequence encoding a second fluorescent ~~or luminescent~~ protein, wherein said first and second fluorescent ~~or luminescent~~ proteins are capable of fluorescence resonance energy transfer (FRET) ~~or bioluminescence resonance energy transfer (BRET)~~.

12. (canceled)

13. (original) The functional heterotrimeric G protein of claim 11 wherein said first and said second amino acid sequences are within 100 angstroms of each other.

14. (currently amended) The functional heterotrimeric G protein of claim 11 wherein the first fluorescent ~~or luminescent~~ protein is cyan fluorescent protein.

15. (currently amended) The functional heterotrimeric G protein of claim 11 wherein the first fluorescent ~~or luminescent~~ protein is yellow fluorescent protein.

16. (currently amended) The functional heterotrimeric G protein of claim 11 wherein the second fluorescent ~~or luminescent~~ protein is cyan fluorescent protein.

17. (currently amended) The functional heterotrimeric G protein of claim 11 wherein the second fluorescent ~~or luminescent~~ protein is yellow fluorescent protein.

18. (currently amended) The functional heterotrimeric G protein of claim 11 wherein the first fluorescent ~~or luminescent~~ protein is cyan fluorescent protein and the second fluorescent ~~or luminescent~~ protein is yellow fluorescent protein.

19. (currently amended) The functional heterotrimeric G protein of claim 11 wherein the first fluorescent ~~or luminescent~~ protein is yellow fluorescent protein and the second fluorescent ~~or luminescent~~ protein is cyan fluorescent protein.

20. (original) The functional heterotrimeric G protein of claim 11 wherein said first amino acid sequence is within a helical domain of said α subunit.

21. (original) The functional heterotrimeric G protein of claim 11 wherein said second amino acid sequence is at the N-terminus of said β subunit.

22. (original) The functional heterotrimeric G protein of claim 11 wherein the α and β subunits are *D. discoideum* G protein subunits.

23. (original) The functional heterotrimeric G protein of claim 13 wherein said first amino acid sequence is within a helical domain of said α subunit and said second amino acid sequence is at the N-terminus of said β subunit.

24. (currently amended) The functional heterotrimeric G protein of claim 23 wherein the first fluorescent ~~or luminescent~~ protein is cyan fluorescent protein and the second fluorescent ~~or luminescent~~ protein is yellow fluorescent protein.

25. (original) The functional heterotrimeric G protein of claim 24 wherein the α and β subunits are *D. discoideum* G protein subunits.

26-55. (canceled)

56. (currently amended) A functional heterotrimeric G protein comprising an α subunit comprising a first fluorescent ~~or luminescent~~ moiety and a β ~~or γ~~ subunit comprising a second fluorescent ~~or luminescent~~ moiety, wherein the first and second fluorescent ~~or luminescent~~ moieties are capable of fluorescence resonance energy transfer (FRET) ~~or bioluminescence resonance energy transfer (BRET)~~.

57-76. (canceled)

77. (new) A functional heterotrimeric G protein comprising an α subunit comprising a first amino acid sequence encoding a first fluorescent or luminescent protein and a β subunit comprising a second amino acid sequence encoding a second fluorescent or luminescent protein, wherein said first and second fluorescent or luminescent proteins are capable of bioluminescence resonance energy transfer (BRET).

78. (new) The functional heterotrimeric G protein of claim 77 wherein said first and said second amino acid sequences are within 100 angstroms of each other.

79. (new) The functional heterotrimeric G protein of claim 77 wherein the first fluorescent or luminescent protein is cyan fluorescent protein.

80. (new) The functional heterotrimeric G protein of claim 77 wherein the first fluorescent or luminescent protein is yellow fluorescent protein.

81. (new) The functional heterotrimeric G protein of claim 77 wherein the second fluorescent or luminescent protein is cyan fluorescent protein.

82. (new) The functional heterotrimeric G protein of claim 77 wherein the second fluorescent or luminescent protein is yellow fluorescent protein.

83. (new) The functional heterotrimeric G protein of claim 77 wherein the first fluorescent or luminescent protein is a light-emitting luciferase protein and the second fluorescent or luminescent protein is yellow fluorescent protein.

84. (new) The functional heterotrimeric G protein of claim 77 wherein the first fluorescent or luminescent protein is a light-emitting luciferase protein and the second fluorescent or luminescent protein is cyan fluorescent protein.

85. (new) The functional heterotrimeric G protein of claim 77 wherein the first fluorescent or luminescent protein is cyan fluorescent protein and the second fluorescent or luminescent protein is a light-emitting luciferase protein.

86. (new) The functional heterotrimeric G protein of claim 77 wherein the first fluorescent or luminescent protein is yellow fluorescent protein and the second fluorescent or luminescent protein is a light-emitting luciferase protein.

87. (new) The functional heterotrimeric G protein of claim 77 wherein said first amino acid sequence is within a helical domain of said α subunit.

88. (new) The functional heterotrimeric G protein of claim 77 wherein said second amino acid sequence is at the N-terminus of said β subunit.

89. (new) The functional heterotrimeric G protein of claim 77 wherein the α and β subunits are *D. discoideum* G protein subunits.

90. (new) The functional heterotrimeric G protein of claim 77 wherein said first amino acid sequence is within a helical domain of said α subunit and said second amino acid sequence is at the N-terminus of said β subunit.

91. (new) The functional heterotrimeric G protein of claim 90 wherein the first fluorescent or luminescent protein is a light-emitting luciferase protein and the second fluorescent or luminescent protein is yellow fluorescent protein.

92. (new) The functional heterotrimeric G protein of claim 91 wherein the α and β subunits are *D. discoideum* G protein subunits.

93. (new) A functional heterotrimeric G protein comprising an α subunit comprising a first fluorescent or luminescent moiety and a β subunit comprising a second fluorescent or luminescent moiety, wherein the first and second fluorescent or luminescent moieties are capable of bioluminescence resonance energy transfer (BRET).